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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,441	07/15/2005	Yaogang Chen	3410-0108PUS1	2781
2292 7590 01/23/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER IEVA, NICHOLAS				
ART UNIT 2836		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/542,441

Applicant(s)

CHEN ET AL.

Examiner

NICHOLAS IEVA

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's amendment to the claims and drawing, filed on 24 October 2008, is acknowledged

Information Disclosure Statement

2. The information disclosure statement filed 17 July 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no antecedent basis for the limitation "the discharge resistance is spaced from said conducting protective grille" in the Applicants specification. Page 3 of the Applicants specification mentions that "the discharge resistance is connected between said conducting protective grille and the interior circuit", but that is different than "the discharge resistance spaced from said conducting protective grille." The limitation that the discharge resistance "spaced from" said conducting protective grille is different then the limitation that the discharge resistance is "connected between" said conducting protective grille and interior circuit because the conducting protective grille and the discharge resistance do not have to be connected to each other. Also, the limitation "spaced from" requires some spatial relationships between its components that is not explained or clearly defined by the limitation or by any part of the Applicants specification. Furthermore, the Applicant has made no attempt to provided support for the newly added limitation "spaced from". See MPEP 2163.04.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no antecedent basic for the new added limitation "discharge resistance is spaced from said conducting protective grille" in the Applicants specification. The Applicants specification is silent to this newly added limitation, and the Applicant has made no attempt to provided support for the newly added limitation. Also, the meaning

of the limitation "spaced from" is unclear, since the Applicant's specification does not clearly disclose or explain the required spatial relationships that are needed to fully understand the limitations that are needed to satisfy the claim.

For the purpose of applying prior art to this claim the limitation "spaced from" is being interpreted as any means (air, element, component or part of a component/element), that separates a component/element from another component/element. Appropriate correction is required.

Claim Objections

4. The previously made objections have been withdrawn in view of the amendment to the claims.
5. **Claim 8** is objected to because of the following informality:

The last line of the claim includes the limitation "diode diodes". Examiner has reason to believe that Applicant intends to mean "diodes" instead of "diode diodes", and the examination of this claim will be based on this interpretation.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. **Claims 12, 14 and 15** are rejected under 35 U.S.C. 102(b) as being anticipated by **Rodrigo et al. (US 4,734,580)**.

Consider **claim 12**, Rodrigo et al. teaches a generator, comprising a casing **14**, said casing having conductive protecting grille **16**, the conductive protecting grille is connected to a certain potential (ground); an interior circuit **C** within the casing; an ion emitting head (**12 and 10**) attached to the interior circuit; and a discharge resistance (resistance of wire between point D and ground), the discharge resistance is connected to the conductive protecting grille by a wire (the wire between the grill and point D) (Rodrigo; figures 1 and 2; column 2, line 60 – column 3, line 20; column 3, lines 54-67; and Figure A, below).

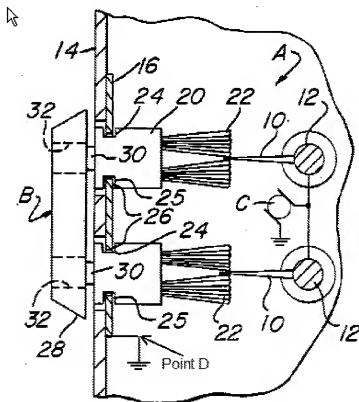


Figure A

Consider **claim 14**, Rodrigo et al. teaches a generator, comprising a casing **14**, said casing having conductive protecting grille **16**, the conductive protecting grille is connected to a certain potential (ground); an interior circuit **C** within the casing; an ion emitting head (**12 and 10**) attached to the interior circuit and means for maintaining the potential of the conductive protecting grille (the resistance of wire between point D and ground) (Rodrigo; figures 1 and 2; column 2, line 60 – column 3, line 20; column 3, lines 54-67; and Figure A, above).

Consider **claim 15**, Rodrigo et al. teaches that the means for maintaining the potential of the conductive protecting grille is a discharge resistance (the resistance of wire between point D and ground) in the casing and is electrically connected to the conductive protecting grille via the wire between the grill and point D (Rodrigo; figures 1 and 2; and Figure A, above).

Furthermore, the applicant is claiming a resistance and not a resistor so any element/component that has a resistance will satisfy this limitation.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. **Claims 1-4, 10, and 11-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Adachi et al. (US Pub. 2003/0098650)** in view of **Rodrigo et al. (US 4,734,580)** and **Halleck (US 4,729,057)**.

Consider **claims 1,12-15**, Adachi et al. discloses an anion generator **1**, comprising, a casing **2**, an interior circuit, an ion emitting head (**7 and 7a**); said casing comprising a insulating case (plastic) and a protective grille **4**; said interior circuit comprising a power circuit (**26, 3, 16, 17 and 13**) and oscillation boosting circuit **5**, the power circuit provides operating power to the oscillation boosting circuit; the oscillation boosting circuit comprising an oscillation circuit (**37 and 38**), boosting circuit **39** and voltage circuit **40**, the function of oscillation boosting circuit is to generate high-tension used to ionize air though an ion emitting head; said ion emitting head is a discharge probe (**7 and 7a**); the ion emitting head is connected with the high-tension output terminal of the voltage circuit in the

oscillation boosting circuit (Adachi; figures 1, 3, 4, 5 and 9; paragraphs 0059, 0062-0073, 0076-0081, 0086, 0087, 0089, 0090).

However, Adachi et al. does not specifically disclose that the protective grille is a conducting protective grille that is connected to a certain potential and that the voltage circuit is a multilevel dual voltage circuit.

Rodrigo et al. teaches a conducting protective grille **16** that is connected to a certain potential (ground) and a discharge resistance (resistance of wire between point D and ground) that is spaced from said conducting protective grille via the wire between the grill and point D (Rodrigo; figures 1 and 2; column 2, line 60 – column 3, line 20; column 3, lines 54-67; and Figure A, above).

Alternatively, the limitation “spaced from” may be also satisfied by the means that connects the grille to the wire because the wire is “space from” the grille by this connection means. It is inherent that some type of means is used to connect the wire to the grill.

Furthermore, the applicant is claiming a resistance and not a resistor so any element/component that has a resistance will satisfy this limitation.

Rodrigo also mentions that above imitations provides one with the means to effectively ionize the air in the gap between the tip **7a** of the ion emitting head and a conducting protective grill (Rodrigo; column 2, line 60 – column 3, line 20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Rodrigo into the anion generator taught by Adachi, because Rodrigo’s teachings would

have give one the ability to ionize the air in the gap between the tip of the ion emitting head and a conducting protective grill.

However, Adachi and Rodrigo do not explicitly disclose that Adachi's voltage circuit is a multilevel dual voltage circuit.

Halleck teaches a multilevel dual voltage circuit **29** (Halleck; figure 4; column 9, lines 24-32).

Halleck also mentions that the above limitation allows one to produce negative ions (anions) at a specific voltage (Halleck; figure 4; column 9, lines 24-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Halleck into the anion generator taught by Adachi and Rodrigo, because Halleck teaches would have taught an alternative means of producing negative ions (anions) at a specific voltage.

Consider **claim 2**, Rodrigo et al. teaches that said conducting protective grille is manufactured as a separate element (Rodrigo; figures 2 and 5; column 2, line 60 – column 3, line 20; column 3, lines 54-67).

Consider **claim 3**, Rodrigo et al. teaches that said conducting protective grille is made from a conductive material (Rodrigo; column 2, line 60 – column 3, line 20; column 3, lines 54-67).

Consider **claims 4 and 10**, Adachi et al. teaches that said boosting circuit is composed of a sheet piezoelectric ceramic transformer **71** (Adachi; figure 5; paragraphs 0062-0073).

Consider **claim 11**, Rodrigo et al. teaches that the discharge resistance (resistance of wire between point D and ground) is connected to the conducting protective grille by a wire (the wire between the grille and point D) (Rodrigo; figures 1 and 2; and Figure A, above).

4. **Claims 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Adachi et al. (US Pub. 2003/0098650)** in view of **Rodrigo et al. (US 4,734,580)**, **Halleck (US 4,729,057)** and **O'Neal et al. (US 6,172,891)**.

Consider **claim 7**, Adachi, Rodrigo and Halleck disclose an anion generator as discussed above.

Furthermore, Adachi et al. teaches that said power circuit includes an AC power supply circuit (**26, 3, 16, 17 and 13**) (Adachi; figure 3; paragraphs 0062-0073).

Halleck teaches a power circuit includes an AC power supply circuit or a DC power supply circuit (Halleck; column 2, lines 1-51).

However, Adachi, Rodrigo and Halleck do not specifically disclose that said power circuit includes AC power supply circuit and DC power supply circuit, between which there is a change-over switch.

O'Neal et al. teaches a power circuit that includes AC power supply circuit and DC power supply circuit, between which there is a change-over switch,

which can be switched to supply power to a DC operable device (O'Neal; figures 7-8; column 4, line 65 - column 5, line 53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of O'Neal into the anion generator taught by Adachi, Rodrigo and Halleck, because O'Neal's teachings would have made the overall anion generator more robust by providing one with the flexibility to choose between two different types of power supplies.

Consider **claim 6**, Adachi et al. teaches that said AC power supply circuit is composed of reduce-limiting current circuit **23 and 16**, diode rectifier bridges **17** and filter capacitor **13** (Adachi; figure 3; paragraphs 0062-0073).

5. **Claims 7-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Adachi et al. (US Pub. 2003/0098650)** in view of **Rodrigo et al. (US 4,734,580)**, **Halleck (US 4,729,057)**, **O'Neal et al. (US 6,172,891)** and **Knight (US 3,863,169)**.

Consider **claim 7**, Adachi, Rodrigo, Halleck and O'Neal disclose an anion generator as discussed above.

Furthermore, Halleck teaches an oscillation circuit **22 and 23** that comprises resistances **46 and 47**, a triode **23** and a inductor **44**; as the loop capacitance of the oscillation circuit, the input capacitance of a transformer **25 and 27** of a boosting circuit is connected between the base electrode and collecting electrode of the triode, so that the oscillation circuit with transformer

can form self-oscillation (Halleck; figures 1 and 4; column 7, line 55 - column 9, lines 32).

However, Adachi, Rodrigo, Halleck and O'Neal do not specifically disclose that the triode is a composite triode.

Knight teaches a composite triode (Knight; figure 1; column 1, lines 3-8; column 2, lines 7-16).

The above limitation would behave like a single transistor but will have a higher current gain. This higher current gain would reduce the base current need to turn-on the triode.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Knight into the anion generator taught by Adachi, Rodrigo, Halleck and O'Neal, because Knight's teachings would have reduced the current needed to turn-on a triode.

Consider **claim 8**, Halleck teaches that said multilevel dual voltage circuit is composed of diodes **77-81** and capacitors **70-72, 74 and 75** (Halleck; figure 4; column 9, lines 24-32).

Consider **claim 9**, Halleck teaches that through a protective resistance **35**, an ion emitting head **13** is connected to the high-tension output terminal of multilevel dual voltage circuit **29** in a oscillation boosting circuit (**22, 23, 26 and 29**) (Halleck; figures 1 and 4; column 7, line 55 - column 9, lines 32).

Response to Arguments

8. Applicant's arguments with respect to claim 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Joannou (US 2003/0147784)** teaches a portable, battery-operated ion generator that comprises a multilevel dual voltage circuit and an oscillation circuit that comprises resistances, a triode and a inductor. **Taylor et al. (US 2001/0032544)** teaches an AC or DC operated ion generator. **Yehl et al. (US 5,043,840)** teaches an AC or DC operated ion generator that comprises a multilevel dual voltage circuit. **Taylor et al. (US 6,163,098)** teaches a power circuit that includes AC power supply circuit and DC power supply circuit, between which there is a change-over switch, which can be switched to supply power to an oscillation boosting circuit (Taylor; figure 3; column 5, line 59- column 6, line 8; column 4, lines 40-50). Taylor's figure 3 depicts both the AC-operated and DC-operated embodiments of the present invention. A change-over switch must be present in order for Taylor's AC-operated and DC-operated embodiments to work, because Taylor only discloses that his ion generating unit receives only one type of operating power at a given time, either AC or DC. **Bossard et al. (4,757,422)** teaches a stainless steel conducting protective grille that is connected to a certain potential (ground)

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICHOLAS IEVA whose telephone number is (571)270-1270. The examiner can normally be reached on M-TH (7:30am - 5pm), and F (7:30am - 4pm), EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on 571-273-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NI

/Fritz M Fleming/
Primary Examiner, Art Unit 2836